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10/696,463	10/30/2003	Ming-Tien Lin	HANP0022USA	6011
27765 7590 07/25/2008 NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116				
EXAMINER RUDE, TIMOTHY L				
ART UNIT		PAPER NUMBER		
2871				
NOTIFICATION DATE		DELIVERY MODE		
07/25/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/696,463

Applicant(s)

LIN ET AL.

Examiner

TIMOTHY RUDE

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 29-35 is/are pending in the application.
4a) Of the above claim(s) 30 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-7, 29 and 31-35 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

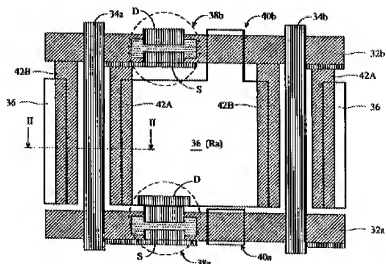
Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-8508)
4) ☐ Interview Summary (PTO-413)
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____
Paper No(s)/Mail Date _____

Election/Restrictions

Newly amended claims 1-7 and 29-31 as well as newly submitted claims 32-33 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Applicant elected and has received numerous office actions on the merits of embodiment one as shown in Applicant's Figure 3E:



Art Unit: 2871

Applicant has amended and added claims drawn to unequal width 42A and 42B per, e.g., contrast Figure 6:

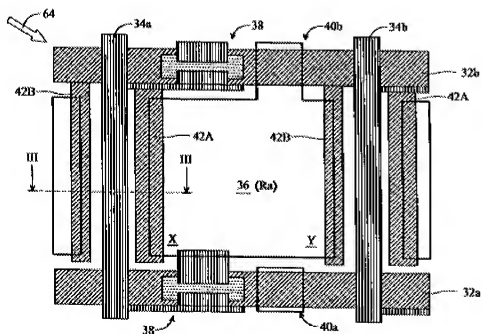


FIG. 6

However, Applicant received an office action rejecting claims that read on the device as shown in Figure 6. Therefore, both species are considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1, 2, 29, and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (APA) in view of Song USPAT 6,788,356.

As to claims 1, 2, 29, and 32-35, APA discloses a liquid crystal display (LCD) device (fig. 1 b, ref. 10) including a plurality of pixel areas, each pixel area comprising a pixels area (fig. 1b, ref. 1a) defined by a first transverse-extending gate line (fig. 1b, ref. 12a), a second transverse-extending gate line (fig. 1b, ref. 12b), a first lengthwise-extending data line (fig. 1b, ref. 14a), and a second lengthwise-extending data line (fig. 1 b, ref. 14b), a pixel electrode formed overlying the pixel area (fig. 1 b, ref. 16), a switching element (fig. 1b, ref. 18a; pg. 2, lines 7-8); a thin film transistor positioned on the first transverse-extending gate line, comprising a source electrode and a drain electrode; and a first shielding layer (fig. 1b, ref. 22a) that is parallel to the first data line, 14a, and overlaps a the periphery of the pixel electrode, 36, and is adjacent to the first data line, 14a,, and a second shielding layer (fig. 1b, ref. 22b) that is parallel to the second data line, 14b, and overlaps a the periphery of the pixel electrode, 36, and is adjacent to the second data line, 34b.

APA does not explicitly disclose that the width of the first shielding layer is larger than the width of the second shielding layer.

Song discloses an LCD where the width of the first light shielding layer is larger than the width of the second shielding layer (col. 5, lines 25-62) to minimize light reflected by the wirings in such a way that an aperture ratio is not negatively influenced

(col. 5, lines 42-50). [Please note this would result in a smaller distance to the first data line per Applicant's claim 33.] Furthermore, since side crosstalk is generated by the leakage of light irradiated at an angle in the area on the data line, forming a first light shielding layer having a greater width would block light to reduce lateral crosstalk (col. 6, lines 20- 27).

Song is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add a width of the second shielding layer (col. 5, lines 25-62) to minimize light reflected by the wirings in such a way that an aperture ratio is not negatively influenced (col. 5, lines 42-50). Furthermore, since side crosstalk is generated by the leakage of light irradiated at an angle in the area on the data line, forming a first light shielding layer having a greater width would block light to reduce lateral crosstalk (col. 6, lines 20- 27).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify APA with a width of the first light shielding layer is larger than the width of the second shielding layer of Song since one would be motivated to minimize light reflected by the wirings in such a way that an aperture ratio is not negatively influenced (col. 5, lines 42-50). Furthermore, since side crosstalk is generated by the leakage of light irradiated at an angle in the area on the data line, forming a first light shielding layer having a greater width would block light to reduce lateral crosstalk (col. 6, lines 20- 27).

Please note Applicant's claim 32, drawn to a "repair line is used ... when the gate line is broken" is considered intended use. The structural limitations of the device are fully considered and properly rejected.

2. Claims 3, 4, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Song, as applied to claim 1 above, and further in view of Okada et al., (Okada), USPAT 6,633,360.

As to claims 3, 4, and 31, APA in view of Song disclose the display of claim 1.

APA in view of Song do not explicitly disclose light shields that directly connect to the first gate line.

Okada discloses an active matrix type liquid crystal display apparatus wherein a light-shielding layer is directly connected to the gate line. He also discloses that such a structure is advantageous since it suppresses shadowing phenomenon due to differences capacitances and thus prevent "block separation" (col. 7, lines 13-24).

Please note that extending light shield 22a of APA to connect to gate line 12a would result in overlap with the extending portion of 14a [applicant's claim 31].

Quote from Okada at col. 7, lines 13-24: "... the light shield film is electrically connected to either the auxiliary capacitor line or the scanning line. In this case, owing to the field shield effect of the light shield film, a part of a line of electric force emitted from the signal line terminates at the auxiliary capacitor line or the scanning line. Thus,

Art Unit: 2871

a first capacitance between the pixel electrode and one of the two adjacent signal lines and a second capacitance between the pixel electrode and the other adjacent signal line are reduced. As a result, the shadowing phenomenon due to the difference between the first and second capacitances is further suppressed, and the "block separation" is well prevented from occurrence."

Okada is evidence that ordinary workers in the art would find a reason, suggestion or motivation to directly connect the first gate line and the first light-shielding layer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display device of the APA by directly connecting the first light-shielding film with the first gate line to prevent block separation, as per the teachings of Okada [this would result in overlapping the extension portion of the data line near the switching element or TFT as in Figure 3E].

3. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Song and further in view of Watanabe et al., (Watanabe), USPAT 5,859,677.

As to claims 5 and 6, APA in view of Song disclose the device of claim 1.

APA does not explicitly disclose that the space between the first data line and the periphery of the pixel electrode is a liquid crystal reverse region and the spacing

Art Unit: 2871

between the second data line and the periphery of the pixel electrode is a liquid crystal non-reverse region.

Watanabe discloses an LCD where the space between the first data line and the periphery of the pixel electrode is a liquid crystal reverse region and the spacing between the second data line and the periphery of the pixel electrode is a liquid crystal non-reverse region (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the space between the first data line and the periphery of the pixel electrode being in a liquid crystal reverse region and the spacing between the second data line and the periphery of the pixel electrode is a liquid crystal non-reverse region since one would be motivated to provide potential stability (col. 7, lines 11-20), which serves to suppress liquid crystal disclination that becomes a cause for coarse image appearance and residual image (col. 3, lines 29-34). Ultimately, this serves to provide a display with enhanced display quality without residual images (col. 3, line 34; abstract).

4. Claims 7 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Song.

As to claims 7 and 32, APA, in view of Song disclose the device of claim 1.

APA does not explicitly disclose a repair line situated across the first shielding layer and the second shielding layer, where the repair line partially overlaps the first shielding layer to provide a first repair point and the repair line partially overlaps the second shielding layer to provide a second repair point.

Song discloses an LCD having a repair line situated across the first shielding layer and the second shielding layer, where the repair line partially overlaps the first shielding layer to provide a first repair point and the repair line partially overlaps the second shielding layer to provide a second repair point (col. 6, lines 41-67; fig. 1, ref. A,B,C, D).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a repair line situated across the first shielding layer and the second shielding layer, where the repair line partially overlaps the first shielding layer to provide a first repair point and the repair line partially overlaps the second shielding layer to provide a second repair point since one would be motivated to provide the most effective means of gate and data line repair (col. 6, lines 60-65; col. 1, lines 40-44).

5. Claims 1, 2, 29, and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (APA) in view of Song USPAT 6,788,356 and further in view of Watanabe et al., (Watanabe), USPAT 5,859,677.

As to claims 1, 2, 29, and 32-35, APA discloses a liquid crystal display (LCD) device (fig. 1 b, ref. 10) including a plurality of pixel areas, each pixel area comprising a pixels area (fig. 1b, ref. Ra) defined by a first transverse-extending gate line (fig. 1b, ref. 12a), a second transverse-extending gate line (fig. 1b, ref. 12b), a first lengthwise-extending data line (fig. 1b, ref. 14a), and a second lengthwise-extending data line (fig. 1b, ref. 14b), a pixel electrode formed overlying the pixel area (fig. 1 b, ref. 16), a switching element (fig. 1b, ref. 18a; pg. 2, lines 7-8); a thin film transistor positioned on the first transverse-extending gate line, comprising a source electrode and a drain electrode; and a first shielding layer (fig. 1b, ref. 22a) that is parallel to the first data line, 14a, and overlaps a the periphery of the pixel electrode, 36, and is adjacent to the first data line, 14a,, and a second shielding layer (fig. 1b, ref. 22b) that is parallel to the second data line, 14b, and overlaps a the periphery of the pixel electrode, 36, and is adjacent to the second data line, 34b.

APA does not explicitly disclose that the width of the first shielding layer is larger than the width of the second shielding layer.

Song discloses an LCD where the width of the first light shielding layer is larger than the width of the second shielding layer (col. 5, lines 25-62) to minimize light reflected by the wirings in such a way that an aperture ratio is not negatively influenced (col. 5, lines 42-50). [Please note this would result in a smaller distance to the first data line per Applicant's claim 33.] Furthermore, since side crosstalk is generated by the leakage of light irradiated at an angle in the area on the data line, forming a first light

shielding layer having a greater width would block light to reduce lateral crosstalk (col. 6, lines 20- 27).

Song is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add a width of the second shielding layer (col. 5, lines 25-62) to minimize light reflected by the wirings in such a way that an aperture ratio is not negatively influenced (col. 5, lines 42-50). Furthermore, since side crosstalk is generated by the leakage of light irradiated at an angle in the area on the data line, forming a first light shielding layer having a greater width would block light to reduce lateral crosstalk (col. 6, lines 20- 27).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify APA with a width of the first light shielding layer is larger than the width of the second shielding layer of Song since one would be motivated to minimize light reflected by the wirings in such a way that an aperture ratio is not negatively influenced (col. 5, lines 42-50). Furthermore, since side crosstalk is generated by the leakage of light irradiated at an angle in the area on the data line, forming a first light shielding layer having a greater width would block light to reduce lateral crosstalk (col. 6, lines 20- 27).

Watanabe discloses an LCD where the space between the first data line and the periphery of the pixel electrode is a liquid crystal reverse region and the spacing between the second data line and the periphery of the pixel electrode is a liquid crystal non-reverse region (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the space between the first data line and the periphery of the pixel electrode being in a liquid crystal reverse region and the spacing between the second data line and the periphery of the pixel electrode is a liquid crystal non-reverse region since one would be motivated to provide potential stability (col. 7, lines 11-20), which serves to suppress liquid crystal disclination that becomes a cause for coarse image appearance and residual image (col. 3, lines 29-34). Ultimately, this serves to provide a display with enhanced display quality without residual images (col. 3, line 34; abstract).

Please note Applicant's claim 32, drawn to a "repair line is used ... when the gate line is broken" is considered intended use. The structural limitations of the device are fully considered and properly rejected.

6. Claims 3, 4, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Song and Wantanabe, as applied to claim 1 above, and further in view of Okada et al., (Okada), USPAT 6,633,360.

As to claims 3, 4, and 31, APA in view of Song and Wantanabe disclose the display of claim 1.

APA in view of Song and Wantanabe do not explicitly disclose light shields that directly connect to the first gate line.

Okada discloses an active matrix type liquid crystal display apparatus wherein a light-shielding layer is directly connected to the gate line. He also discloses that such a structure is advantageous since it suppresses shadowing phenomenon due to differences capacitances and thus prevent "block separation" (col. 7, lines 13-24).

Please note that extending light shield 22a of APA to connect to gate line 12a would result in overlap with the extending portion of 14a [applicant's claim 31].

Quote from Okada at col. 7, lines 13-24: "... the light shield film is electrically connected to either the auxiliary capacitor line or the scanning line. In this case, owing to the field shield effect of the light shield film, a part of a line of electric force emitted from the signal line terminates at the auxiliary capacitor line or the scanning line. Thus, a first capacitance between the pixel electrode and one of the two adjacent signal lines and a second capacitance between the pixel electrode and the other adjacent signal line are reduced. As a result, the shadowing phenomenon due to the difference between the first and second capacitances is further suppressed, and the "block separation" is well prevented from occurrence."

Okada is evidence that ordinary workers in the art would find a reason, suggestion or motivation to directly connect the first gate line and the first light-shielding layer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display device of the APA by directly connecting the first light-shielding film with the first gate line to prevent block separation,

Art Unit: 2871

as per the teachings of Okada [this would result in overlapping the extension portion of the data line near the switching element or TFT as in Figure 3E].

7. Claims 7 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Song and Wantanabe.

As to claims 7 and 32, APA, in view of Song and Wantanabe disclose the device of claim 1.

APA does not explicitly disclose a repair line situated across the first shielding layer and the second shielding layer, where the repair line partially overlaps the first shielding layer to provide a first repair point and the repair line partially overlaps the second shielding layer to provide a second repair point.

Song discloses an LCD having a repair line situated across the first shielding layer and the second shielding layer, where the repair line partially overlaps the first shielding layer to provide a first repair point and the repair line partially overlaps the second shielding layer to provide a second repair point (col. 6, lines 41-67; fig. 1, ref. A, B, C, D).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a repair line situated across the first shielding layer and the second shielding layer, where the repair line partially overlaps the first shielding layer to provide a first repair point and the repair line partially overlaps the second shielding

layer to provide a second repair point since one would be motivated to provide the most effective means of gate and data line repair (col. 6, lines 60-65; col. 1, lines 40-44).

Response to Arguments

Applicant's arguments filed on 01 April 2008 have been fully considered but they are not persuasive.

Applicant's ONLY substantive arguments are as follows:

(1) Regarding independent claims 1, 34, and 35, applied art does not teach a wider first shielding layer.

(2) Regarding independent claims 1, 34, and 35, Applicant makes piecemeal arguments.

(3) Regarding claims 3 and 4, Okada does not teach a shielding film that connects to the scanning line (gate line).

(4) Dependent claims are allowable because they directly or indirectly depend from an allowable base claim.

Examiner's responses to Applicant's ONLY arguments are as follows:

(1) It is respectfully pointed out that Song teaches motivations for adjusting shield layer width such that one of ordinary skill in the art would know to adjust the widths as claimed without undue experimentation, i.e., meets obviousness criterion. Also, Watanabe teaches that one side is the liquid crystal reverse region and the other

is not, so one of ordinary skill in the art would know to adjust the light blocking layer as needed to achieve desired light blocking without undue reduction in aperture, thereby resulting in the claimed wider first shielding layer.

(2) It is respectfully pointed out that most limitations are properly rejected by APA alone. Secondary references provide motivation to modify APA per rejections above. Structure that is met by APA does not need to be also met by any secondary reference.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

(3) It is respectfully pointed out that examiner cited the following quote from Okada at col. 7, lines 13-24:

"... the light shield film is electrically connected to either the auxiliary capacitor line or the scanning line. In this case, owing to the field shield effect of the light shield film, a part of a line of electric force emitted from the signal line terminates at the auxiliary capacitor line or the scanning line. Thus, a first capacitance between the pixel electrode and one of the two adjacent signal lines and a second capacitance between the pixel electrode and the other adjacent signal line are reduced. As a result, the shadowing phenomenon due to the difference between the first and second

capacitances is further suppressed, and the "block separation" is well prevented from occurrence."

Okada does teach, and render obvious, a shielding film connected to the gate line.

(4) It is respectfully pointed out that in so far as Applicant has not argued rejection(s) of the limitations of dependent claim(s), Applicant has acquiesced said rejection(s).

Any references cited but not applied are relevant to the instant Application.

Conclusion

Applicant's amendment necessitated any new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY RUDE whose telephone number is (571)272-2301. The examiner can normally be reached on Increased Flex Time Program.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nelms C. David can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

tir

/TIMOTHY RUDE/
Primary Examiner, Art Unit 2871